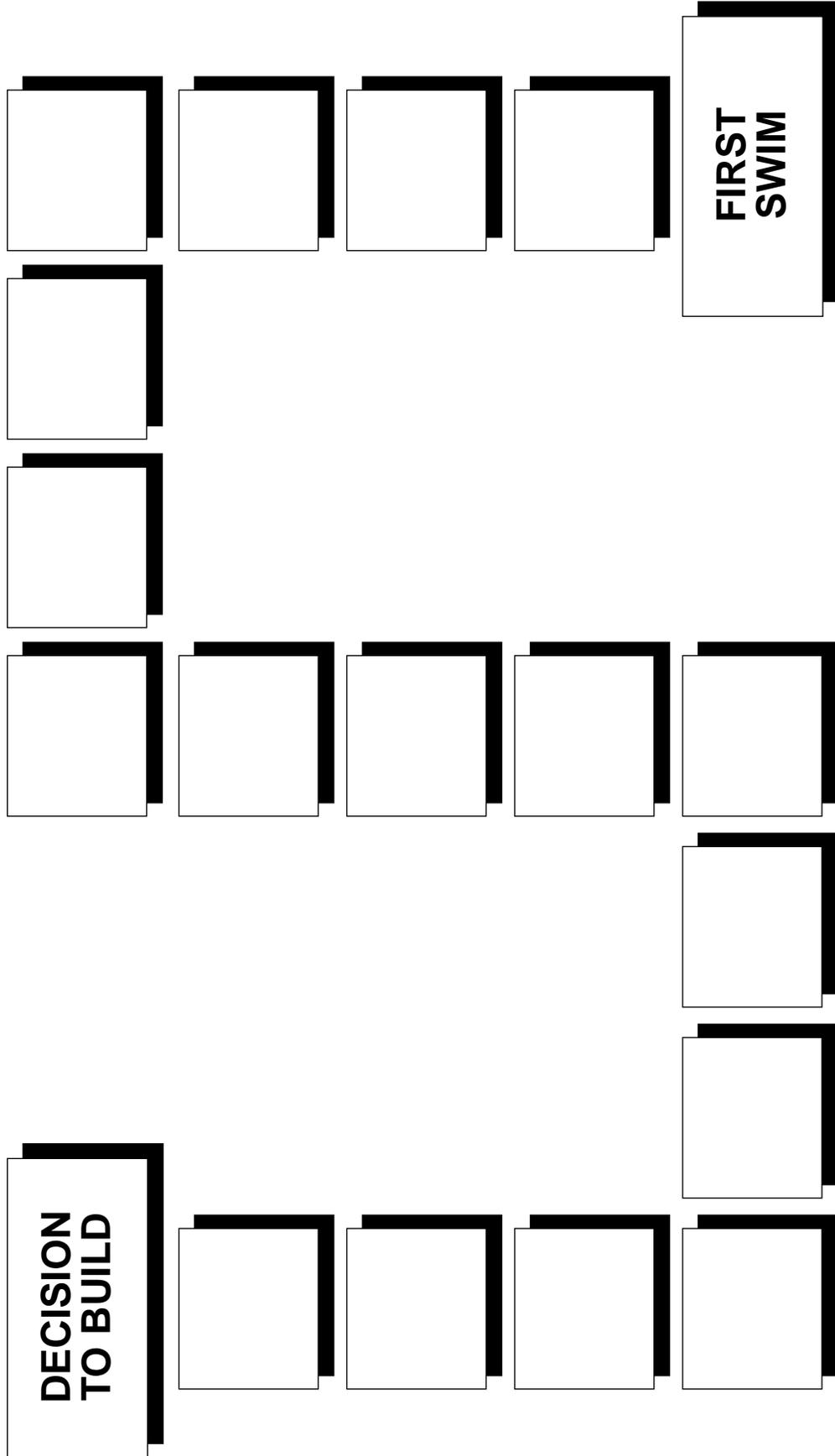


**SWIMMING POOL CONSTRUCTION FLOW CHART**



*NOTE: You are not limited by the number of boxes on this chart. You may feel free to use fewer boxes than provided or add more boxes if you feel this is necessary.*



## NUCLEAR WASTE CHALLENGES AND SOLUTIONS

**PART I**

Managing the Nation's nuclear waste is a complicated challenge with both technical and societal aspects that must be addressed. After reading the Overview—Nuclear Waste Policy Act, consider the statements written below and decide if each statement is a challenge or a solution (or both) and if it is societal or technical (or both). For each statement, put a check in the appropriate box or boxes.

	<u>Challenge?</u>	<u>Solution?</u>	<u>Technical?</u>	<u>Societal?</u>
1. There is an accumulation of spent fuel and high-level waste that requires permanent disposal.				
2. The Nuclear Waste Policy Act of 1982 (NWPA) and the Nuclear Waste Policy Amendments Act of 1987 established a national policy for safely storing, transporting, and disposing of spent nuclear fuel and high-level waste.				
3. The NWPA requires utilities using nuclear reactors for generating electricity to pay a fee that covers their share of all costs of disposal of spent fuel. Also, the Federal Government is required to pay costs of disposing of high-level waste that results from defense activities.				
4. Radioactive waste is a potential hazard to public health and safety and the environment.				
5. State and local governments and the public will participate in planning for disposal of waste.				
6. Spent fuel and high-level waste must be safely transported to the repository.				
7. The Federal Government is planning a deep underground geologic repository for permanent disposal of spent fuel and high-level waste.				
8. Spent fuel and high-level waste will remain radioactive for thousands of years.				
9. The Federal Government will assist utilities in providing storage of spent fuel until a repository is ready.				
10. Spent fuel and high-level radioactive waste is thermally hot.				
11. In the Amendments Act, Congress directed DOE to conduct site characterization studies at Yucca Mountain, Nevada, for purposes of determining its suitability as a site for a geologic repository.				
12. Many Nevada residents are opposed to a geologic repository being constructed in their State.				



**PART II**

Managing our Nation's nuclear waste is a complex technical and societal issue. What is the U.S. government's planned response to this issue?

**Directions:** In the blank provided, write the number of the U.S. government's planned response to each problem listed. There may be more than one response to a problem.

<u>PROBLEM</u>	<u>PLANNED RESPONSE</u>
_____ A. There was no national policy for safely storing, transporting, and disposing of spent nuclear fuel and high-level waste.	1. following transportation regulations of Federal, State, and local agencies 2. studies to evaluate geologic formations
_____ B. The site selected for the repository must meet strict guidelines developed to ensure safety of the environment and the public.	3. independent review of all aspects of the waste disposal program 4. shipping casks subjected to tests
_____ C. High-level waste and spent nuclear fuel are major subjects of public concern.	5. The Nuclear Waste Policy Act and amendments passed by Congress 6. field and laboratory testing at potential site
_____ D. Disposing of spent fuel and high-level waste is expensive.	7. transportation procedures being developed with State, Tribal, local governments, and public input
_____ E. It is important that the public have confidence in the safety of disposal of spent fuel and high-level waste.	8. U.S. government required to pay costs for disposing of defense high-level waste
_____ F. Spent fuel and high-level radioactive waste must be transported safely.	9. environmental assessments and environmental impact statements 10. detailed site characterization 11. utilities pay fee for all electricity generated by nuclear energy 12. State and local government and public participation in the planning and development of the repository required



# RISK

**Directions:** Everything we do involves some risk, but some things are riskier than others. Below is an alphabetical list of 30 activities and technologies. Rank the risk of an individual (not necessarily you, but anyone) of dying in any year from these activities and technologies, with #1 as the most likely and #30 as the least likely.

Alcoholic beverages	high school and college football	power mowers
bicycles	home appliances	prescription antibiotics
commercial aviation	hunting	railroads
contraceptives	large construction	skiing
electric power (non-nuclear)	motorcycles	smoking
firefighting	motor vehicles	spray cans
food coloring	mountain climbing	surgery
food preservatives	nuclear power	swimming
general (private) aviation	pesticides	vaccinations
hand guns	police work	X-rays

- |           |           |
|-----------|-----------|
| 1. _____  | 16. _____ |
| 2. _____  | 17. _____ |
| 3. _____  | 18. _____ |
| 4. _____  | 19. _____ |
| 5. _____  | 20. _____ |
| 6. _____  | 21. _____ |
| 7. _____  | 22. _____ |
| 8. _____  | 23. _____ |
| 9. _____  | 24. _____ |
| 10. _____ | 25. _____ |
| 11. _____ | 26. _____ |
| 12. _____ | 27. _____ |
| 13. _____ | 28. _____ |
| 14. _____ | 29. _____ |
| 15. _____ | 30. _____ |



## RISK PERCEPTION COMPUTER ACTIVITY

**Directions:** This computer activity will allow you to rank 30 activities or technologies according to their risk and then compare your rankings to rankings done by:

- members of your class,
- members of a professional business club,
- members of a League of Women Voters group,
- a group of college students, and
- a group of risk assessment experts.

1. To begin, type RANK and then press <Enter>.
2. The program will automatically assign you a student number and prompt you to rank each item listed.

Rank the activities and technologies in the order of their risks. Use numbers “1” through “30” with “1” as the most risky and “30” as the least risky. You must rank each item. Use each number only once.

The cursor will go down only. If you want to go back to an item you have already passed, run the cursor all the way through the list and it will return to the top of the first column.

To change a ranking, put the cursor at the correct position and type in the new ranking. You do not need to delete the old number.

Hit F2 if you need help, want to start over, or have ranked all the items.

3. By hitting the F2 key, you will be able to get help, start over, save your ranking, or quit the program. DO NOT QUIT UNLESS YOUR INSTRUCTOR TELLS YOU TO DO SO.

When you have finished, save your ranking. The computer will then check to be sure you have not left any item out or used a number more than once. If you have, numbers you forgot to use or numbers you used more than once will be listed and you can make corrections.

4. When you have finished and saved your rankings, the computer will show you on screen how your rankings compare with others. The results will be displayed for:
  - your ranking,
  - the ranking of your class so far,
  - experts, and
  - others who have ranked the items.
5. If you want a printed copy of the rankings, enter “Y” in response to the prompt “DO YOU WANT A PRINTED COPY OF THE RANKINGS? [Y/N]”.
6. The screen will say “IS THERE ANOTHER STUDENT? [Y/N]”. Respond “Y” for another student to use the program.